

THE DISTRIBUTION OF THE BILBERRIES IN NEW ENGLAND.

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WHILE walking late in June in open pine woods near York Village, Maine, the writer was greatly surprised to find, among low junipers and other shrubs, a patch of dwarf bilberry, *Vaccinium caespitosum*. The bushes, somewhat hidden by juniper, arrow-wood (*Viburnum dentatum*), and black cherry (*Prunus serotina*), covered an area about twelve feet square, and were fruiting abundantly. Little time was devoted to further search, and no other colonies of the plant were seen; but the uniform character of the large tract of woods suggests that the plant may not be restricted to the small area noted.

The special interest of this recently discovered colony at York lies not alone in the fact that this is the southernmost known station for the plant in eastern America, but chiefly in the striking circumstance that, as ordinarily known to New England botanists, *Vaccinium caespitosum* is a plant of the highest alpine summits. On the mountains, furthermore, the dwarf bilberry is not, like the related *V. uliginosum*, of general distribution. While the latter abounds everywhere above timber-line on the New England and Canadian mountains, the former (*V. caespitosum*) is generally confined to extremely limited areas near the summits of a few peaks. In the Quebec mountains it is known only at the summit of Mt. Albert in Gaspé; on the highest peaks of New Brunswick *V. uliginosum* alone is found; as a mountain-plant in Maine *V. caespitosum* is known only from two peaks, — Ktaadn, and at the pinnacle (4,450 feet) on Saddleback, near Rangeley Lake; in the White Mountains it occurs on the summits of Washington, Monroe, Moosilauke, and probably Lafayette, but it is rare or unknown on the other peaks; in Vermont it is found as an alpine species on Mt. Mansfield; and in the Adirondacks it occurs on the summits of Mts. Marcy and Whiteface.

Growing thus with *Diapensia lapponica* and other arctic-alpine species upon the highest peaks of northern New England, New York, and Canada, *Vaccinium caespitosum* would naturally be expected, like them, in arctic and subarctic portions of eastern America. Although it is said in the Synoptical Flora to grow on Hudson Bay, no authentic record of it can be found from north of Hamilton river (latitude 53°–54° N.); and recent explorers have seen it on the Labrador

coast only as far north as Chateau Bay (lat. 52°). Furthermore, *Vaccinium caespitosum* is a species unique to North America, not of broad range in the northern hemisphere like most of the arctic-alpine species of New England. If, like them, it occurred in arctic America, we should expect to find it in northern Europe as well.¹ But, as stated, there is no evidence that the dwarf bilberry is an arctic species, nor does it occur in Europe.

In New England and adjacent Canada, furthermore, the plant is by no means confined to the alpine summits. In Vermont it has been found on the banks of the West River at an altitude of not more than 400 feet (RHODORA, ii. 88). Among the White Mountains it is known from a few valley stations, — for example, by Moose river in Randolph, where it is said never to fruit, and in a pasture at Jackson. In Maine the writer has found it at low altitudes in many sections. The York station recently discovered has been already mentioned. This, the most southern known colony of the shrub, is within the limits of a town where *Sagina nodosa*, *Potentilla litoralis*, *P. tridentata*, *Plantago maritima*, and other far-northern species are known. But these plants are all on rocky banks or cliffs near the sea, where the conditions are not unfavorable to arctic species. The *Vaccinium*, on the other hand, grows with huckleberries (*Gaylussacia resinosa*), columbine (*Aquilegia canadensis*), Lecheas, Helianthemums, and other plants of southern range, in dry open woods, nearly or quite three-fourths of a mile from the sea.

With the exception of the York station (latitude $43^{\circ} 8'$), the dwarf bilberry is as yet unknown in Maine south of latitude $44^{\circ} 50'$. In the valley of the Kennebec it occurs on sheltered rocky banks at Madison, and from there northward is not uncommon, — as often on sunny hillsides as on sheltered banks. In the Carrabassett valley the shrub is found on sandy knolls near West Embden, and at New Portland it is abundant on the river bank. In the valley of the Sandy river it has been seen only by the river in Phillips, but no other locality has been searched for it. In the valleys of the Penobscot and its tributaries, the Piscataquis, the Mattawamkeag, and the Wassataquoik, the plant is to be found on almost any ledgy or gravelly river-bank from Orono northward, and not infrequently the shrub abounds on dry sunny slopes. In fact, the "Sugar Loaf" in Orono, a hot sandy

¹ For discussion of such distribution, see RHODORA, ii. 38.

hill where the dwarf bilberry thrives, is the northernmost station in Maine for the southern species, *Polygala polygama* and *Corylus americana*. In the valley of the upper St. John, however, from the mouth of the Madawaska river westward, *Vaccinium caespitosum* reaches its greatest development in Maine. There it is one of the common blueberries, covering acres of gravelly shore and hillside pasture. The fruit is gathered as "Indian blueberry"; though, on account of its habit — the berries solitary or few, and drooping from the axils — it is less easily picked than the equally common *V. canadense*.

Little is known of the distribution of *Vaccinium caespitosum* in New Brunswick, save in the St. John valley, but further exploration will doubtless show it to be as frequent there as in Maine. There are many large areas in Maine, too, where the plant has not been noted, as the thickly populated section between the Sandy river and York. Here, as in New Hampshire and Vermont, the species is probably much more common than has been supposed. The comparative insignificance of the shrub, — rarely a foot high, and with drooping flowers and fruits hidden by the leaves, — as well as the prejudiced opinion that it should be looked for only upon alpine summits, has tended to keep the plant an unknown species in regions where it may abound. At any rate, its comparative frequency throughout Maine, from latitude $44^{\circ} 50'$ northward, and its absence from Labrador, north of Chateau Bay and Hamilton river (latitude 54°), are sufficient evidence that the dwarf bilberry is a boreal or Canadian plant, though of rather limited distribution in the East. Its occurrence on the alpine summits of a few mountains, and not on the lower treeless slopes, is not readily explained; but that several common species of our lowland woods — the bunchberry, *Cornus canadensis*, etc., — thrive upon the alpine summits with *Diapensia*, *Cassiope*, and *Bryanthus*, is a fact well known to all students of the New England mountain flora. *Vaccinium caespitosum*, then a plant of somewhat extended lowland range, should be classed, apparently, with *Cornus canadensis*, rather than with the arctic-alpine *Diapensia*, *Cassiope*, and *Bryanthus* which, in our latitude, cling exclusively to the alpine peaks.

With the common mountain bilberry, *Vaccinium uliginosum*, the case is quite different. This species, as already stated, abounds above timber-line on practically all the higher mountains of New England, sometimes on peaks of scarcely 2,000 feet altitude. It is in no sense confined merely to the "pinnacles," as is the tendency with

V. caespitosum, but it covers acres of ledgy slopes. Unlike the latter species, however, the mountain bilberry rarely grows at low altitudes. In Maine only three such stations are known,—a dry hillside in Farmington, a ledgy shore of the Carrabassett in Jerusalem (in the valley between Mt. Abraham and Mt. Bigelow), and Fort Kent on the upper St. John, where it is reported by Miss Furbish (see RHODORA, i. 172). In New Hampshire it rarely descends to the valleys, as in Franconia Notch; and in Vermont a single lowland station is recorded, on the bank of Lamoille river in the Green Mountains (RHODORA, ii. 88). Thus, although of very general distribution on the mountain summits of New England, the mountain bilberry as a lowland species is very exceptional.

In its broad range, *Vaccinium uliginosum* occurs throughout the circumpolar regions of the northern hemisphere, and it is one of the chief sources of food among northern races. It is very decidedly an arctic-alpine species, though not of such restricted distribution on our mountains as the arctic *Diapensia*, *Cassiope*, etc. Why this shrub, which abounds in polar regions, should thrive just above timber-line on so many of our mountains, while *Vaccinium caespitosum*, a lowland species, which is unknown north of latitude 54° , clings, when it ascends the mountains, to the most exposed summits, is more easily asked than answered. That this seemingly anomalous condition exists there can be no doubt, but for its final explanation we must await further investigation.

A REMARKABLE DEVELOPMENT of *Steironema lanceolatum*. — A form of *Steironema lanceolatum* which was exhibited at Horticultural Hall last summer was the subject of much discussion. The plant was found in Holbrook, on the banks of a ditch, in a meadow. It has since been found in a second locality from the first, so that it cannot be regarded as an abnormal development. The plant is remarkable in that the stems trail along the ground *for a distance of five or six feet*, rooting at intervals in the mud. In this it resembles the southern *S. radicans*, but specimens compared at the Gray Herbarium show it to have the foliage, inflorescence, and calyx of *S. lanceolatum*. — ALICE L. GRINNELL, Holbrook, Mass.